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INFANT AND CHILD MORTALITY IN DUBLIN A CENTURY AGO[1]

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INFANT AND CHILD MORTALITY IN DUBLIN A CENTURY AGO

The literature on infant and child mortality in Europe before World War I is already considerable.[1] This paper's contribution is to address familiar issues in a new setting with new data. Dublin's high mortality rates a century or so ago are well documented. At the time they attracted a good deal of attention from officials, commentators, and politicians, and helped sustain a long-lasting campaign for improved public health measures, particularly the provision of cleaner water and better sanitary facilities. Others, however, saw the city's poverty and the poor quality of its housing stock – private poverty rather than public squalor – as the main reasons for its high death rates.[2]

The main analytical focus of this paper is on a sub-population living in a part of the city now largely encompassed by the postal district of Dublin 4, a relatively affluent area in the south-east of the city. A century ago this area constituted the suburban township of Pembroke. Their ethnic, confessional, and socio-economic diversity make Pembroke households an interesting group to study. I seek to assess the relative importance of socioeconomic, cultural, and environmental factors in accounting for the variation in infant and child mortality between households in Pembroke a century ago.

However, I begin with a review of conditions in the city as a whole in the decades before the Great War (Parts 1 and 2). An analysis of aggregate censal and civil registration data supports impressionistic accounts of high mortality, but also suggests some slight improvement over time. I then place Pembroke in this period in context (Part 3). In Part 4 I describe the Pembroke database (Part 4), and in Part 5 the econometric analysis and outcome. Part 6 offers a brief case study of Dublin'S Jewish community. Part 7 concludes.

1. DEAR DIRTY DUBLIN:

Arguments about the relative importance of poverty and public health are a common feature of studies of infant and child mortality (e.g. van Poppel and Mandemakers 1997). Victorian and Joycean Dublin's water and sanitary facilities were probably no worse than those of many other cities at the time. Indeed Dublin had been a leader in the public provision of clean water. The ambitious Vartry reservoir scheme ended Dublin's dependence on supplies from the Royal and Grand Canals in the 1860s. Moreover, though the city relied on the river Liffey as its main sewage outlet until 1906, more than two decades earlier a royal commission of inquiry into Dublin's sewerage disposal had found that 'the existing system of sewerage, although a cause of nuisance by polluting the river, could not be made wholly answerable for the high rate of mortality', and by the early 1890s the city had 'an extensive and well-built system of street drains' (Daly 1981:237-8; BPP, 1880: v; Pim 1892: 13). Plans to provide a main drainage system had been mooted from mid-century but vested interests delayed implementation. The scheme eventually adopted, largely modelled on London's, was designed to carry the sewage of the city and outlying districts in large drains along the Liffey to the Pigeon House for treatment and disposal (O'Brien, 1982; Daly, 1981: 238-41; 1983; Prunty, 1999).[3]

Poverty's role in accounting for Dublin's high mortality a century ago is strongly implied by the significant variation in death rates by socio-economic class and area. In 1909, for example, the overall death rate in Dublin's relatively affluent southern suburbs was 16 per thousand while in North City No. 2 District, comprising part of the inner city to the north of the Liffey, it was 24.7 per thousand. And in Dublin Registration District as a whole (i.e. Dublin and suburbs) in the mid-1880s the death rate in households headed by 'hawkers, porters, labourers' was nearly three times that in households headed by 'merchants and managers, higher class'. Dublin's high mortality

rate is explained in part by the high proportion of casual, unskilled labourers its the labour force. In Table 1 the considerable mortality gap between rich and poor is captured by the age-distributions of deaths by class in the mid-1880s and the 1900s.

Not only was congested and run-down housing a good proxy for low income: it also seriously constrained the benefits of investments in municipal water supply and sewerage schemes. Poor, overcrowded housing meant blocked water-closets, the lack of heating and proper food, inadequate hygiene, damp walls, contaminated water, and antisocial behaviour.

Ethno-religious differences have also been invoked in accounting for Dublin's poverty and the ensuing high mortality: 'the Irish were held to be more dirty than the English and, lest there be any misdirected imputation, the Protestant cleaner than the Roman Catholic' (O'Brien 1982: 103; on Irish-Americans compare Morawska 1994: 326-7). The impact of religion or culture per se on mortality has not been quantified, however. Elsewhere it clearly played a role: a century ago mortality in European Jewish communities was lower, and fertility in Catholic communities higher, than predicted by income or socio-economic status alone (Woodbury 1926; Marks 1994; Derosas 2003; van Poppel, Schellekens, and Liefbroer 2001; Garrett *et al.* 2001: 153; Schmelz 1971). In Dublin a municipal official attributed the 'healthy offspring and low infant mortality' of the city's small Jewish community, in part at least, to the monthly *mikvah* ritual practiced by its womenfolk in specially-provided facilities in Tara Street baths (O'Brien 1984: 102). The infant and child mortality rates of Dublin's Jewish community are the focus of Part 6 below.

In Dublin the Catholic and Protestant communities were not segregated as they were in Belfast, but they tended to live rather separate lives. As throughout Ireland schools, hospitals and other charitable institutions, voluntary organisations, and social and sporting clubs — of which there were many — tended to

be organised along denominational lines (Prunty, 1998: 343-6). Political affiliation was also largely determined by religion. This sense of separateness is well-reflected in novelist Elizabeth Bowen's memoir of childhood in middle-class Dublin in the 1910s:

> It was not until the end of those seven winters that I understood that we Protestants were in a minority, and that the unquestioned rules of our being came, in fact, from the closeness of a minority world. Roman Catholics were spoken of by my father and mother with a courteous detachment that gave them, even, no myth. I took the existence of Roman Catholicism for granted but met few and was not interested in them. They were simply 'the others', whose world lay alongside ours but never touched (Bowen 1942: 44).

The relative importance of religion, economics, and neighbourhood in accounting for the differences in mortality levels between Catholic children and those of other faiths remains an unresolved issue, however.

The bleak image of late Victorian and Joycean Dublin that emerges from the historiography is easily justified. In no other city in western Europe on the eve of World War I did one-third of households live in one-room tenement accommodation. (Such housing was categorised as 4th-class in the census reports). The over-crowded tenements, rooms in what were formerly the homes of some of Dublin's richest families, dated mainly from the late Georgian era. Dublin's poverty was exacerbated by the weakness of its industrial base and the lack of employment opportunities for most women outside the home. And mortality in Dublin was indeed high by western European urban standards (Prunty 1998: 154-7).

Yet snapshot depictions of the city tend to overlook any improvement that took place. Poor as Dubliners seemed (and *were*) on the eve of the Great War, they were better off than

Dubliners of the previous generation. This is reflected in trends in housing conditions and in wages. In 1881 42.7 per cent of households had lived in 4th-class housing, and 1861 the proportion was 46.7 per cent.[4] Dublin's housing problem was therefore less the lack of improvement in the city as a whole than the persistence of thousands of one-room tenement units in its festering core. Such tenement units constituted the bulk of Dublin's 4th-class housing in these decades and their number declined only slowly (23,360 in 1881, 19,342 in 1891, 20,564 in 1911).

Critics on the left and right repeatedly accused the city's elected officials of doing little about the housing problem (Daly 1985: 218-20; O'Brien 1982: ch. 3; Aalen 1992: 296-97; Prunty 2001). There certainly was plenty of jobbery and corruption to complain about, yet not even the corporation, overwhelmingly nationalist in composition from the early 1880s on, was impervious to pressure. It began to act in the 1880s, rehousing a total of 2,447 people in the Liberties. It marked time in the 1890s, but rehoused over four thousand more individuals between 1900 and 1913. This may not seem much for a city of over 300,000 people. And yet, for all the corporation's poor reputation, the 1,385 units municipally housed by 1914 represented the highest proportion of inhabitants so accommodated of any city in the United Kingdom (Daly 1995: 226; Prunty 1999: 175).

There was also some progress on other fronts. The corporation's sanitary officers vigorously pursued, fined, and named those found guilty of trading in adulterated food, and this seems to have had some effect. They also sought to improve sanitary conditions in the slum areas. The use of flush toilets spread rapidly after 1880. Between 1880 and 1882 their number in Dublin rose from 743 to fifteen thousand, and two decades later privies were almost a thing of the past. A serious drawback was that in tenement housing toilets were located outside and shared between several families. This in practice restricted their use

to men and older boys. In order to minimise vandalism and the transmission of disease corporation workmen set yard toilets in asphalt and rid them of all woodwork. The corporation also made strides in closing down dangerous housing, refuse removal, the control of slaughterhouses, and health inspections. Recalcitrant landlords were also fined and named (Cameron, *AR 1913*: 127-8; Cameron, 1914: 82-3; Cameron in Dublin Corporation, 1906; Aalen, 1992: 293-4). Much more might have been done, had the corporation's tax base not been constrained by the retreat of so many of the middle-classes to the suburbs and by the reluctance of those remaining to pay more.

Wage data offer another plausible gauge of changes in material wellbeing. A series describing the nominal daily wage earned by (unskilled) Dublin building labourers suggests a rise of about one-half between the early 1880s and the eve of the Great War (D'Arcy 1989). Moreover, these data suggest that the gap between British and Dublin nominal wages narrowed in the construction sector between 1880 and 1914 (Feinstein: 1990; compare also Knowles and Robertson: 1951).[5] Since the cost of living probably fell somewhat over this period (e.g. Kennedy 2002), a bigger rise in relative living standards is indicated.

2. MORTALITY IN DUBLIN

How high was mortality in late Victorian and Joycean Dublin? In Ireland the civil registration of births, marriages, and deaths began late (in 1864). As if to compensate, almost from the outset the registrar general produced a wealth of detail, including weekly data on births and deaths in Dublin for publication in the local newspapers. Beginning in 1880, cross-tabulations of deaths by age, gender, socio-economic status, and district were also analysed at length in the annual reports of the city's chief medical officer (Cameron, *AR, passim*). Unfortunately even in Dublin the registrar general's data for the early years are subject to considerable under-enumeration.

This is evident from the fact that until 1877 the total number of burials in the city's main cemeteries[6] exceeded registered deaths in Dublin Registration District. The ratio of registered deaths to burials jumped abruptly in 1879, when new legislation required the cemetery authorities to forward burial data to the registrar general (Daly 1984: 242). Between 1880 and 1914 the ratio of registered deaths to burials hovered between 1.15 and 1.2. The ratio of infant to total deaths was also nearly constant over the same period (average 0.184, coefficient of variation 0.06). The president of the Dublin Sanitary Association was probably justified in claiming in 1890 that 'probably at the present time the accuracy of the Dublin registration is as nearly perfect as care and labour can make it' (Pim, 1890: 7).

If that was the case, it means that the overall death rate in greater Dublin (i.e. the city and neighbouring townships) declined in these years (Tables 1 and 2).[7] The cross-tabulation of deaths by social class in Table 1 reflects the broad categories employed by the Irish registrar general at the time. It suggests that the life expectancy of those in the top three classes rose significantly between the mid-1880s and the 1900s, while that of the poor improved only marginally. Since the share of the poor in the total rose, life expectancy overall did not rise much.[8] By the same token Table 2 shows that mortality in Dublin was higher than in Belfast in the 1880-1910 period, but that the gap was narrowing over time.

What of infant and child mortality? Here we define infant mortality in year t (IM_t) as registered deaths of children aged less than one year in year t divided by the number of births in the same year. We define child mortality analogously as registered deaths of children aged 1-5 years in year t divided by five times the number of children aged 1-5 years. The latter is approximated by five times the number of births in year t multiplied by (1 - IM_t). These admittedly crude definitions suggest that Belfast's advantage over Dublin also held in the

case of infant mortality and the mortality of children aged 1-5 years.

How did infant and child mortality in the city change over time? The trends in the pre-war period as reflected in the registrar general's figures are shown in Table 3 and 4. While the results suggest that in Ireland trends were more muted than in Britain, the declines in Dublin are worth noting. A significant narrowing in the gaps between Dublin and Belfast over these decades is also implied, particularly in the 1900s. Both aggregate and infant and child mortality trends c. 1880-1914 thus corroborate the impression gained from wage and housing data.

Some context may be useful here. In England and Wales the decline in early child mortality preceded that in infant mortality by several decades. The infant mortality rate dropped sharply in both urban and rural areas from 1899 on. The universal character of the fall suggests a common cause, and also argues against the specifics of water supply and sewage disposal in particular areas (Woods 2000).[9] Woods has stressed that the English pattern of a decline in early childhood mortality in the late nineteenth century, followed by a rapid drop in infant mortality from the beginning of the twentieth, was not unique (Woods 2000: 279; citing Vallin 1991). In Dublin too the decline in child mortality seems to have preceded that in infant mortality.

Woods interprets these findings as suggesting that 'a number of universal factors, operating alone or in a synergistic fashion, seem to have been at work and to have had a significant and immediate effect'. He doubts whether cleaner milk alone could have produced such a radical decline in infant mortality, but suggests an important role for fertility control; indeed he speculates that 'the general effects of family limitation on the course of European demographic change...may provide a counter to the long-established wisdom associated with transition theory, in which infant mortality decline in particular acts as a spur

to fertility control' (Woods 2000: 291, 295, 307; compare Reher 1999).[10] This mutual causation adds to the difficulties of formally identifying the determinants of variations in either fertility or mortality.

3. THE 1911 CENSUS

Much of the research into infant and child mortality patterns in Great Britain and the U.S. a century ago is based on information gleaned from the censuses of 1911 (G.B.) and 1900 (U.S.). This is because in both cases special surveys of marital fertility yielded data on the number of children ever born and the number surviving in each household inhabited by a married couple. The reporting of deaths was retrospective and confined to couples cohabiting on census night, but it has generally been deemed sufficiently accurate for both cross-sectional and time-series inferences (Haines 1985: 888; Watterson 1988: 292; Preston and Haines 1991; Garrett *et al.* 2001).

The 1911 Irish census, conducted on the night of 2nd April 1911, is well known to be problematic in another respect, however. A glance at its age distributions reveals an implausibly large increase in the numbers of men and women in their sixties and seventies between 1901 and 1911. The increase in apparent survival rates was largely a by-product of the Old Age Pensions Act of 1908 (Budd and Guinnane, 1992; Ó Gráda, 2002a). In the absence of civil registration before 1864 hard evidence of age, particularly in more remote and poorer regions, was not always available. Claimants suspected that census declarations of age might be used in processing pension claims, and this suspicion affected the 1911 census. Deliberate age-misreporting was widespread in Ireland in 1911. It was less common in urban than in rural areas, however, and married women were less likely to lie than widowed or single women. Happily it was unimportant in the two sub-populations analysed below.

Cross-tabulations of data from the Irish census of 1911,

which included a survey very similar to those in Great Britain and the U.S., are reported in Tables 5 and 6. Table 5 describes the association between infant and child mortality in the Dublin Registration Area (the city plus suburbs), marriage duration, and the wife's age at marriage. Wives' age at marriage is inferred from age in 1911 and marriage duration. Note the familiar U-shaped relation between the death rate and age at marriage at all durations, and the implication that children born to very young and older mothers were at greater risk. These seem plausible outcomes, as does the association between marriage duration and mortality.

In Table 6 the finding that mortality varied with fertility is also sensible. 'Spacing' seems to have reduced mortality: compare the high mortality rates for big families at marriage durations of 0-4, 5-9, and 10-14 years in Figure 1 (not reproduced in this version). This corroborates the link between fertility and mortality emphasised by David Reher (1999) and by Robert Woods (2000). Note too, however, that when there were lots of children the death rates peaked at the marriage duration of 10-14 years. Perhaps some long-married parents 'forgot' to report early births that had failed to survive.

The mortality data are therefore tarnished to some extent by both age misreporting and under-enumeration. In mitigation the outcome of the census is consistent with the Registrar General's findings. Bear in mind that the latter include all births while the census tables exclude the children of single parents, who were at far greater risk. Comparing 1911 Dublin mortality rates with rural Irish and English rates also offers some reassurance, since it implies - plausibly - that in Ireland as a whole mortality rates were slightly lower than in England, but mortality rates in Dublin and other Irish cities unusually high.

In the econometric estimation that follows in Part 5 the analysis is confined to married women under fifty years. This should eliminate most of any bias resulting from either omitted

deaths or age exaggeration.

4. PEMBROKE TOWNSHIP:

Our main focus in this and the next section of this paper is on infant and child mortality in Pembroke township. Pembroke became part of Dublin city proper only in 1930 but formed part of the Dublin registration district in the decades covered in this study. Our database is taken from the manuscript enumeration forms of the 1911 Irish census. It contains 2,649 married couples, 471 of whom had never had children. The remaining 2,178 had already produced 9,091 children between them, though over one in six (1,628) of these had died before census night. The deaths were very concentrated in a small number of families. Forty-five per cent of the total took place in nine per cent of the families with families who suffered three or more infant or child deaths.

Pembroke was located to the south-east of the city proper, its 650 hectares broadly overlapping with the modern postal district of Dublin 4. Its status as a separate municipality freed its taxpayers of the burden of cross-subsidising the poorer inhabitants of the old city. Though disproportionately middle class, the township was mixed in both confessional and socio-economic terms. It contained both working-class neighbourhoods and some of very opulent streets such as Ailesbury Road.[11] Pembroke's population rose from 20,982 in 1871 to 29,294 in 1911.

Ireland a century ago was overwhelmingly Catholic[12], but it contained districts where the non-Catholic presence was significant. Pembroke is a good example. This is reflected in our database, where nearly one-third of the households are non-Catholic. Most (22.8 per cent) subscribed to the episcopalian Church of Ireland; Presbyterians and other non-Catholics accounted for 3.3 and 5.6 per cent, respectively. 2.6 per cent of the couples included a Catholic and a non-Catholic.[13] It

should be noted that religious affiliation counted for much more then than in modern semi-secularised Ireland. Religious observance was the norm for members of all churches and the ratio of clergy to laity was very high.[14] Another feature of Pembroke was its high proportion of immigrants, either from abroad (mainly Great Britain) or elsewhere in Ireland. 13.8 per cent of the fathers in the database and 13.5 per cent of the mothers were born abroad, while 28.9 per cent of the fathers and 29.7 per cent of the mothers were born elsewhere in Ireland than Dublin.

The socio-economic gap between Catholics and non-Catholics in Pembroke was very wide. Catholic couples accounted for 95 per cent of all couples living in tenements. Catholic households contained a median of 1.7 people per room, compared to a non-Catholic median of 0.87. Catholic men accounted for 89 per cent of the labourers, 78 per cent of semi-skilled workers, 63 per cent of those in skilled occupations, 43 per cent of the clerks, and 32 per cent of those in professional occupations.

In terms of housing quality Pembroke fared much better than the city proper, being closer to its rival township of Rathmines in this respect than to Dublin proper. Yet Pembroke also contained many tenement dwellings and one-room apartments. In terms of occupational breakdown Pembroke was also closer to Rathmines than to the old city. Socially and economically it was more mixed and more industrial than Rathmines. Nearly one in three of its labour force was an unskilled worker, and these included several dockers, gardeners, fishermen, and seamen. Its main industrial plant, the Irish Glass Bottle Company located in Ringsend, employed over three hundred men at the time.

Though Pembroke is a relatively small area (3 sq. miles) we divided it up into five districts in the quest for purely local and neighbourhood effects. Our five districts are Sandymount, Ballsbridge, Donnybrook, Ringsend, and what we will call Inner Pembroke. Ringsend was poorest: 42 per cent of its labour force were unskilled labourers and only 1.3 per cent in top

occupations such as land agent, barrister, or stockbroker. In Sandymount only 11.4 per cent were in the former category, but 23.1 per cent in the latter. Note, however, that while the gap in infant and child mortality rates between Ringsend (20.9 per cent) and Sandymount (14.3 per cent) was significant, Ringsend was fortunate in this respect compared to the poorest districts of Dublin proper. Table 7 provides cross-tabulations of fertility and mortality by religion, occupational status, and district.

Note that the omission of some households from a particular cohort due to migration or death may lead to some selection bias. The death or absence of a parent could well influence the life chances of surviving children. In this paper we will ignore this type of problem.

5. ESTIMATION

Our database consists of Pembroke households in which neither husband and wife had been previously married and who had already produced one or more children before census day (see Guinnane *et al.* 2001). Age at death of non-surviving children is not given, and so our analysis (like those of Britain in 1911 and the US in 1910) must necessarily treat infant and child mortality together. The database contains 2,178 couples who had already produced at least one child in 1911.[15]

The objective is to explain some at least of the variation in infant and child mortality in the pre-1911 period. It must be emphasised that the task is complicated by the lack of precise measures of some of the likely determinants of mortality, and by the endogeneity of one or more of the explanatory variables. Our socio-economic co-variates include an indices of male occupational status ranging from I (elite occupations such as accountant, surgeon, land agent, through II (white-collar workers and traders), III (skilled workers), and IV (semi-skilled workers) to V (unskilled occupations such as labourer,

gardener), and indices of housing quality provided in the census itself (the number of rooms and the number of house points, two indices provided in the census itself). Culture is represented by religion (Church of Ireland, Presbyterian, Other Non-conformist, and Mixed). The duration of marriage, and the ages at marriage and places of birth of husband and wife are also given.

In modelling infant and child mortality, the number of children dead (*CDEAD*) or the proportion of children dead (*PDEAD*) are probably the most obvious candidates for dependent variable. Here, however, I rely instead on the mortality index devised by Haines and Preston (Preston and Haines 1991: 88-90; Haines and Preston 1997) for their classic study of infant and child mortality in the United States a century ago. The index is also by Garrett *et al.* (2000) in their study of mortality in England. The index is the ratio of actual child deaths (as given in the census for all mothers in the database) to expected deaths. Expected deaths are obtained by multiplying the number of children ever born to a mother by an expected child mortality level for the relevant marriage duration group (0-4, 5-9,10-14, 15-19, 20-24, 25-29, and 30-34 years). The use of marriage duration categories controls for how long children have been exposed to the risk of dying. Here the expected averages are based on the Coale-Demeny Model Life Table Level 13.5, which is consistent with e_0 = 49.8. The choice of level is not crucial, however, since the index values are proportional. The index is normalised at the value of one.

One of the advantages of the Preston-Haines mortality index is that it 'encrypts' marriage duration and marital fertility. Using *CDEAD* or *PDEAD* would have required a measure of fertility as a covariate, insofar as large families increase the pressure on household resources. However, mortality also influences fertility through the so-called 'replacement effect'. Finding suitable instruments to finesse this endogeneity problem is not easy. However, the Preston-Haines index seems to offer a way

out in this instance, since it is fertility-adjusted.

Two variables are included as measures of exogenous pressures at the time when infants and children were most at risk. The first is the gross emigration rate in the first four years of marriage (*EMR*). *EMR* rose from 10 per thousand in 1876-80 (for marriages of 30-4 years duration) to 16.9 per thousand in 1881-5, and fell thereafter, reaching 7.2 per thousand in 1906-10 (for marriages of 0-4 years duration). Our second background covariate is the child mortality rate in Greater Dublin during the first four years of marriage (*CMR*); this is included to capture the shifting incidence of risks such as the prevalence of infectious diseases. This measure too fell over time, but with a blip in 1896-1900 (see Table 3).

Table 8 describes the marginal effects produced by three specifications. The signs on most of the covariates are as expected. Living in a tenement increased risk, whereas being born in a Presbyterian household reduced it; the offspring of professional couples had better survival chances, and those living in the poorer neighbourhood of Ringsend had worse. The outcome leave a role for geography, culture, and socio-economic influences. All faiths other than Catholicism were associated with lower mortality, with the infants and children of Presbyterians and other non-conformists being least at risk. The results also show that mortality was subject to a steep socio-economic gradient. The impact of housing proxies comes across when the block of occupational categories *ii* to *v* is excluded, but including both blocks swamps the impact of housing quality. The coefficient on the interaction term *ringprot* suggests that the children of non-Catholics in Ringsend were at particular risk. And, for some unknown reason, living in Sandymount affected the hazards facing the children of semi-skilled and unskilled workers (*ivsandy* and *vsandy*) differently. Overall, the most robust outcome is that in Pembroke the impact of socio-economic status, as measured by occupational group, was much stronger than that of religious affiliation.

6. CONCLUSION

This preliminary analysis of infant and child mortality in Dublin began with a survey of trends in the city as a whole based on published censal and civil registration data. Such data highlight the impact of urbanisation and socio-economic status. Individual-level data for the southern suburb of Pembroke confirm the role of 'culture' but imply that, if anything, economic factors influenced the life chances of infants and children even more. Perhaps this is partly because our proxy for culture, religious affiliation, is a poor one. Regression analysis also pointed to the influence of location, though our study area of Pembroke is too small for this effect to have much scope. Inevitably this study is also constrained by the imprecise nature of some of the covariates used. More research is needed at both the intensive and extensive margins.

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TABLE 1. THE AGE-DISTRIBUTIONS OF DEATHS (%) BY SOCIO-ECONOMIC GROUP IN DUBLIN REGISTRATION AREA, 1883-1887 AND 1901-1910.

A. 1883-7

Class	*Total*	*0-4*	*5-19*	*20-39*	*40-59*	*60-79*	*80+*
I	2295	10.1	5.1	12.2	18.3	38	16.3
II	7709	24.4	9.6	19.1	17.8	22.5	6.6
III	12694	37.2	11.1	15.9	18.9	14.9	2
IV+V	27555	34.3	7.9	15.5	19.5	19.7	3
I-V	50253	32.4	8.8	16	19	19.8	3.9

B. 1901-1910

Class	*Total*	*0-4*	*5-19*	*20-39*	*40-59*	*60-79*	*80+*
I	3406	5	2	9.5	19.8	41.6	22.1
II	14059	18.4	8	18	20.7	26.6	8.3
III	19910	29.9	8.1	16.4	22.5	20.2	2.9
IV+V	53287	34.7	6.8	15.1	19.9	20.5	2.9
I-V	90662	30.1	7.1	15.6	20.6	22.2	4.5

Note: I=Professional and independent class; II=Middle class; III=Artisan and petty shopkeepers; IV=General service class; V=Workhouse inmates.

Source: *Weekly Returns of Births and Deaths* (yearly Summary, 1883-87; BPP 1914, vol. XV [cd. 7121], 'Supplement to the 47th report of the Registrar-General containing...decennial summaries', p. xlix.

TABLE 2. THE DEATH RATE IN DUBLIN AND BELFAST 1881-1911

(a) GREATER DUBLIN

Year	*Population*	*Recorded Deaths*	*Death Rate (per 1,000)*
1881	311672	9424	30.2
1891	316313	9195	29.1
1901	349019	9571	27.4
1911	371936	9118	24.5

(b) BELFAST

Year	*Population*	*Recorded Deaths*	*Death Rate (per 1,000)*
1881	207671	4911	23.6
1891	255922	6537	25.5
1901	351083	7738	22
1909	386756	7028	18.2

Source: Vaughan and Fitzpatrick, 1978: 28-9; *Thom's Almanac*, various years; *Returns of Births and Deaths in Dublin*, various years.

TABLE 3. INFANT AND CHILD MORTALITY IN DUBLIN AND BELFAST

	Infant Mortality		*Child Mortality*	
Period	*Dublin*	*Belfast*	*Dublin*	*Belfast*
1880/4	186.5	149.7	175.5	n/a
1885/9	176.6	148.1	167.6	n/a
1890/4	169.1	167.4	132.4	93.1
1895/9	175	161.6	157.0	122.7
1900/4	164.4	149.3	123.4	107.2
1905/9	146.6	139.1	104.6	92.8
1910/4	147.9	137.6	116.4	98.9

Note: these are rates per thousand. 'Child mortality' refers to ages 1-5. Source as in Table 2.

TABLE 4. INFANT AND CHILD MORTALITY (PER CENT), WIFE'S AGE AT MARRIAGE, AND MARRIAGE DURATION IN DUBLIN REGISTRATION AREA

WAAM	*0-4*	*5-9*	*10-4*	*15-9*	*20-4*	*25-9*	*30-4*
<20	13.2	20.6	23.5	26.8	30	32.1	27.8
20-24	11.3	16.4	19.9	22.9	26.1	28.7	22.9
25-29	9.6	13.8	19.5	21.3	26.2	25.6	20.5
30-34	11.3	17	20.1	25.8	24.9	28.3	22
35-39	12.3	18.8	31.8	27.8	23.2	25.7	25
40-49	13	19.5	28.9	30.4	26	29.6	25.2

Source: derived from *1911 Census General Report*, pp. 502-527.

TABLE 5. FAMILY SIZE, PERCENTAGE DEAD, AND MARRIAGE DURATION IN DUBLIN REGISTRATION AREA

Ch.	*0-4*	*5-9*	*10-14*	*15-19*	*20-24*	*25-29*
1	7.1	9.6	11	14.9	16.8	20.7
2	11.2	11.3	14.1	19.4	18.3	20.7
3	16.4	13.4	15.8	18.1	19.2	18.8
4	27.1	16.4	16.1	18	21.2	24.1
5	32	22.7	17.7	19.9	22.5	22
6		25.6	20.9	21.4	22.1	24.3
7		27.9	24.9	22.1	26.8	26.6
8		44.9	30.6	23.8	25.6	28.3
9		44.4	31.3	27.8	27.8	30.5
10			37.4	34.5	30.6	31.6
11		*	47.9	34.2	33.3	33
12			40.3	40.5	34.6	36
13+			54.9	44.6	44.8	41.8
Avg	10.9	16.5	20.8	23.9	27.3	29.3

Source: derived from *1911 Census General Report*, pp. 502-527. Asterisk indicates fewer than twenty deaths.

TABLE 6. MARRIAGE DURATION AND CHILD MORTALITY (% dead in 1911)

Duration	*Ireland*	*Co. Boroughs*	*Dublin*	*E&W*
<1	6.9	6.2	6.3	7.2
1	6.1	7.9	7.9	7.8
2	7.9	9.9	9.7	9
3	8.4	11.4	11.3	10.1
4	9.3	13.1	12.2	11
5 to 9	11.2	16.2	16.5	13.8
10 to 14	14	20.3	20.8	17.3
15 to 19	16	22.8	23.9	19.5
20 to 24	17.9	26.5	27.3	21.4
25 to 29	19.6	28.9	29.4	22.7

Source: derived from 1911 Census, Table 165 and 1911 Census of England and Wales.

TABLE 7. RELIGION, CLASS, FERTILITY, AND MORTALITY IN PEMBROKE

Occode	*Number*	*CB*	*Children dead*	*Death Rate (%)*	*Ch. per couple*
I	411	945	89	9.4	2.3
II	534	1514	210	13.9	2.84
III	354	1326	226	17	3.75
IV	486	1892	390	20.6	3.89
V	847	3368	710	21.1	3.98
Religion					
Catholic	1736	6533	1265	19.4	3.76
C. of I.	605	1612	231	14.3	2.66
Presb	88	266	40	15	3.02
Mixed	68	226	34	15	3.32
Other	149	445	58	13	2.99
District					
Donnybrook	431	1467	243	16.6	3.4
Ballsbridge	333	1039	176	16.9	3.12
Ringsend	949	3800	796	20.9	4
Sandymount	454	1297	185	14.3	2.8
Inner Pembroke	482	1488	228	15.3	3.09

TABLE 8. MORTALITY IN PEMBROKE: MARGINAL EFFECTS

variable	*dy/dx*	*z*	*dy/dx*	*z*	*dy/dx*	*z*	*Mean Value*
	[1]		[2]		[3]		
*ii**	.0860	0.73	.0975	0.82			.1912
*iii**	.2825	2.16	.2901	2.15			.1388
*iv**	.4753	3.64	.4854	3.59			.1847
*v**	.4178	3.48	.3938	2.93			.3378
doms					-.0418	-0.66	.3174
*tenement**	.1144	1.11	.1050	1.08	.0922	0.81	.1585
rooms					-.0295	-1.48	4.642
*ldghse**					-.1111	-0.83	.0818
*cofi**	-.2594	-2.52	-.2784	-2.58	-.3423	-3.19	.2178
*presb**	-.2761	-1.35	-.3167	-1.52	-.3974	-1.93	.0326
*mixed**	-.1252	-0.55	-.1435	-0.62	-.2028	-0.89	.0257
*othernon**	-.3359	-2.12	-.3615	-2.20	-.4170	-2.56	.0565
agew			.0200	3.04	.0202	3.04	35.92
emrate	.0314	1.91					9.817
cmr	.0053	2.41	.0042	2.04	.0043	2.10	138.4
*hrur**	.1208	1.46	.1032	1.21			.2872
*wrur**	-.1709	-2.13	-.1935	-2.43	-.1898	-2.23	.3006

TABLE 8. MORTALITY IN PEMBROKE: MARGINAL EFFECTS (continued)

	[1]		[2]		[3]		
*ringsend**			.0378	0.70	.0739	0.83	.3704
*ivsandy**	-.6707	-2.35	-.6877	-2.34	-.4647	-1.69	.0156
*vsandy**			.5563	2.28	.6430	2.53	.0188
*ringprot**	.4541	3.09	.4476	2.60	.4769	2.86	.0781

(*) dy/dx is for discrete change of dummy variable from 0 to 1

Number of obs	2176	2176	2177
F	(15, 2160) 7.55	(17, 2158) 7.33	(16, 2160) 7.49
Prob > F	0.0000	0.0000	0.0000
R-squared	0.0498	0.0546	0.0494
Adj R-squared	0.0432	0.0471	0.0428
Root MSE	1.147	1.579	1.582

A Note on the variables:

ringprot, *ivsandy*, and *vsandy* are interaction variables, referring to Ringsend, Sandymount, and occupational categories *iv* and *v*. *Doms* refers to the number of domestic servants, *rooms* to the number of rooms.

ENDNOTES:

1. E.g. Garrett and Reid 1995; Bideau *et al.* 1997; Alter 1997; Haines 1985; Preston, Ewbank, Hereward 1994.

2. The literature is voluminous. Modern assessments include O'Brien 1982; Aalen 1985, 1992; Daly 1982, 1984, 1995; Prunty 1999.

3. In Dublin (as elsewhere), however, it was claimed that mains water may have exacerbated an already serious drainage and sewage problem for a time by prompting the spread of domestic flush toilets. Because many of its house drains were of poor quality, the rich may have been affected more than the poor, to the extent that their houses ran an increased risk of infection while the poor continued to rely on the ashpit and privy (O'Brien 1982: 19). Occasional high profile fatalities from typhoid fever such as that of the Jesuit poet-professor Gerard Manley Hopkins at the age of 44 in 1889 lent credence to the view that a proper sewerage system was a necessary complement to a clean water supply.

4. Including 'civic' areas of the county (i.e. municipal boroughs, townships, and towns of two thousand people or more) changes the percentages to 40.6 per cent in 1861, 33.8 per cent in 1881, and 26.2 per cent in 1911. In 1841 the percentage of families living in 4th-class accommodation was 46.9 (*1841 Census*, 21). Most fourth-class housing in urban Ireland consisted of one-room tenement apartments.

5. D'Arcy (1989) presents his annual general labourer series as a range. The 'low and 'high' columns are the five-year averages of the low and high ends of his range. The final column is Bowley's index for the building industry in the United Kingdom, as reported in Feinstein (1990: 608-9).

Period	*Low*	*High*	*UK*
1870-4	25	29	
1875-9	27	30	
1880-4	28	30	87.0
1885-9	28	35	87.8
1890-4	29	38	82.3
1895-9	38	39	86.9
1900-4	40	40	100.0
1905-9	40	43	100.0
1910-4	41	46	101.1

6. Thus excluding the presumably small number of burials in parish graveyards.

7. Compare Aalen 1992: 285. The downward drift in Aalen's moving average is halted temporarily by a blip, due mainly to a measles epidemic, in the late 1890s.

8. Using 2, 12, 29, 49, 69, and 85 years as age-group mid-points yields the following crude estimates of the expectation of life:

Class	*Mid-1880s*	*1900s*	*Increase*
I	53.4	60.3	6.9
II	37.0	42.1	5.1
III	27.9	33.75	5.85
IV	31.8	32.25	0.45
Average	32.6	35.2	2.6

9. That mortality in the late 1890s was above trend does not alter this.

10. The impact of declining fertility on infant and child mortality in early twentieth-century England is also stressed by Garrett *et al.* (2001).

11. For an evocative account of life in a working-class section of Pembroke a few decades after the period analysed here see Blain, 2000.

12. Over eighty per cent of the population of the island of Ireland was Catholic in 1911, and over ninety per cent of the area that would constitute the Irish Free State in 1922. In the Greater Dublin area that included the suburban townships of Pembroke and Rathmines & Rathgar, the Catholic share was somewhat less (78.2 per cent). Members of the Episcopalian Church of Ireland accounted for a further 16.7 per cent of the population of this greater metropolitan area, Presbyterians 1.9 per cent, Methodists 1.2 per cent, and others (mainly other non-conformists) 2.1 per cent.

13. However, this does not include instances whether either party changed religious affiliation beforehand to facilitate marriage.

14. There was either a male or female religious per 180 inhabitants in Pembroke in 1911. Non-catholics were proportionately better catered for in terms of male clergy, but there were 93 Catholic nuns.

15. Happily age-exaggeration proved not to be a problem in Pembroke (Guinnane *et al.* 2001).